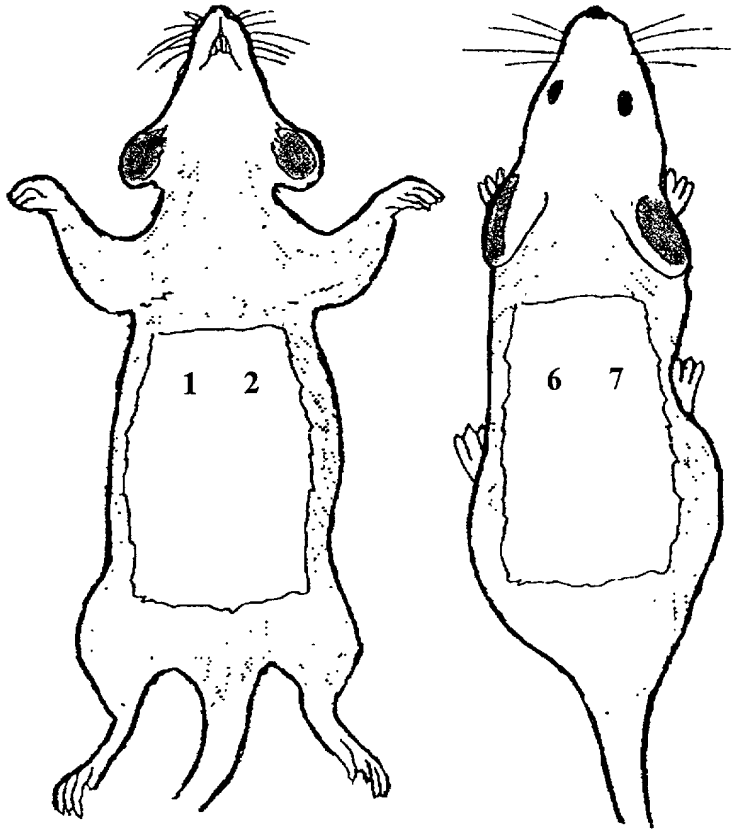
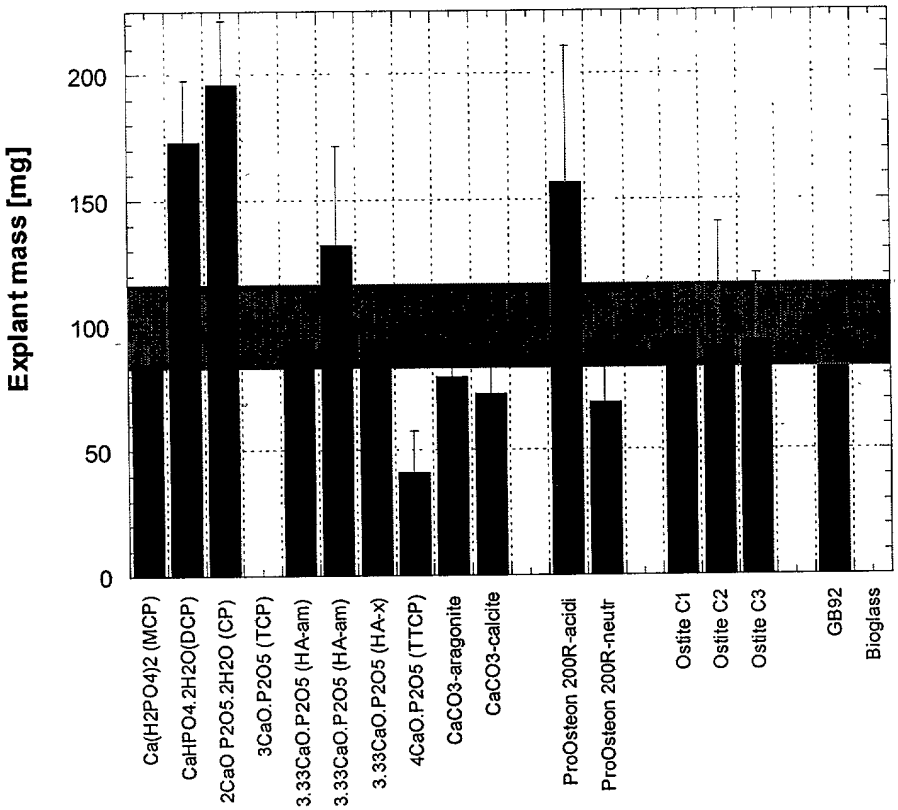



**Figure 1**

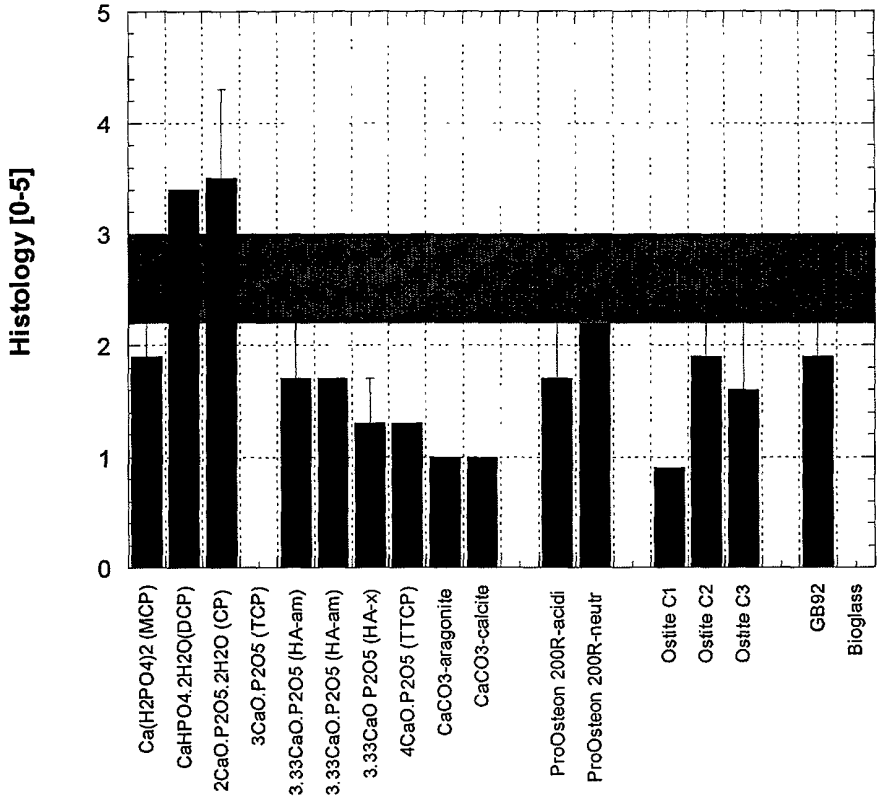
## Figure 2 A




## Figure 2 B

| | Explant Mass | | | | Explant Mass - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CB | | CPB | | CB | |
| | avg | *±SD* | avg | *±SD* | avg | *±SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 71.2 | *17.0* | 84.8 | *11.0* | 84.7 | *20.2* | 100.8 | *15.5* |
| $CaHPO4.2H_2O$(DCP) | 157.2 | *22.4* | 91.6 | *10.6* | 173.0 | *24.7* | 100.8 | *15.5* |
| $2CaO.P_2O_5.2H2O$ (CP) | 191.8 | *24.6* | 98.6 | *13.7* | 196.1 | *25.2* | 100.8 | *15.5* |
| $3CaO.P_2O_5$ (TCP) | | | | | | | | |
| $3.33CaO.P_2O_5$ (HA-am) | 134.8 | *15.2* | 144.8 | *29.8* | 93.9 | *10.6* | 100.8 | *15.5* |
| $3.33CaO.P_2O_5$ (HA-am) | 136.2 | *39.9* | 103.8 | *13.4* | 132.3 | *38.8* | 100.8 | *15.5* |
| $3.33CaO.P_2O_5$ (HA-x) | 109.0 | *18.1* | 116.2 | *8.6* | 94.6 | *15.7* | 100.8 | *15.5* |
| $4CaO.P_2O_5$ (TTCP) | 46.8 | *18.8* | 115.0 | *5.9* | 41.0 | *16.5* | 100.8 | *15.5* |
| $CaCO_3$-aragonite | 96.6 | *41.0* | 123.2 | *15.1* | 79.1 | *33.6* | 100.8 | *15.5* |
| $CaCO_3$-calcite | 73.4 | *24.1* | 102.2 | *17.6* | 72.4 | *23.8* | 100.8 | *15.5* |
| ProOsteon 200R-acidi | 87.5 | *30.2* | 56.3 | *16.3* | 156.7 | *54.1* | 100.8 | *15.5* |
| ProOsteon 200R-neutr | 22.0 | *4.9* | 32.2 | *6.5* | 68.9 | *15.3* | 100.8 | *15.5* |
| | | | | | | | | *0.0* |
| Ostite C1 | 108.3 | *13.4* | 114.2 | *13.8* | 95.6 | *11.8* | 100.8 | *15.5* |
| Ostite C2 | 101.6 | *55.0* | 112.2 | *22.8* | 91.3 | *49.4* | 100.8 | *15.5* |
| Ostite C3 | 109.8 | *31.5* | 118.6 | *26.3* | 93.3 | *26.8* | 100.8 | *15.5* |
| GB9N | 80.8 | *10.8* | 98.6 | *13.4* | 82.6 | *11.0* | 100.8 | *15.5* |
| Bioglass | | | | | | | | |

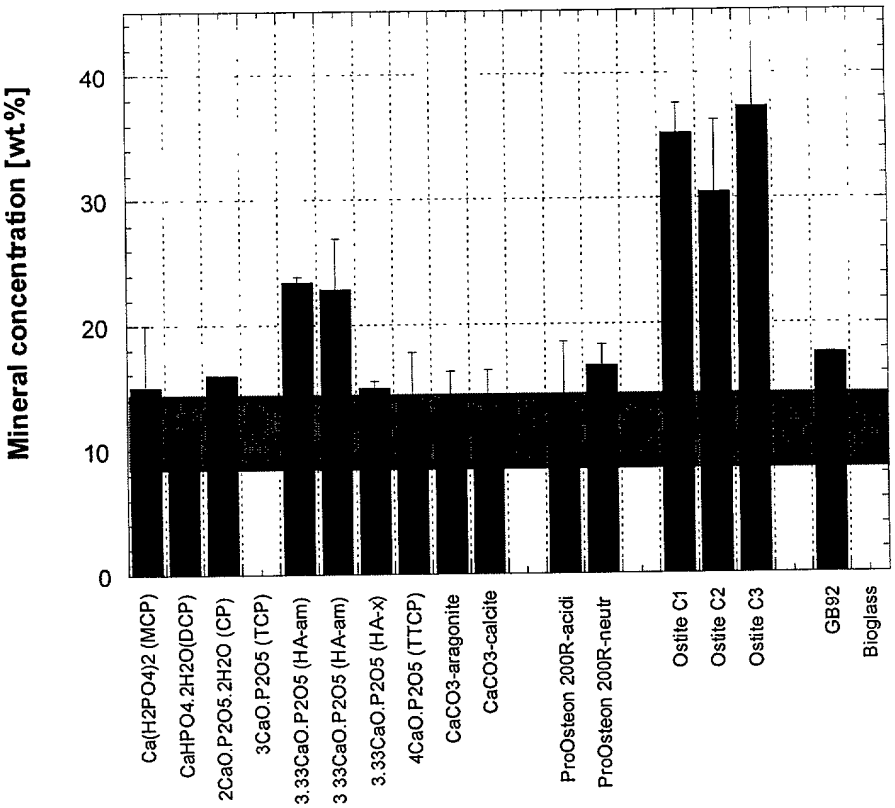
## Figure 3 A




## Figure 3 B

| | Histology Score | | | | Histology Score - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CB | | CPB | | CB | |
| | avg | *±SD* | avg | *±SD* | avg | *±SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 1.7 | *0.6* | 2.3 | *0.6* | 1.9 | *0.7* | 2.6 | *0.4* |
| $CaHPO4.2H_2O$(DCP) | 3.0 | *0.0* | 2.3 | *0.6* | 3.4 | *0.0* | 2.6 | *0.4* |
| $2CaO.P_2O_5.2H2O$ (CP) | 2.7 | *0.6* | 2.0 | *0.0* | 3.5 | *0.8* | 2.6 | *0.4* |
| $3CaO.P_2O_5$ (TCP) | | | | | | | | |
| $3.33CaO.P_2O_5$ (HA-am) | 1.3 | *0.6* | 2.0 | *0.0* | 1.7 | *0.8* | 2.6 | *0.4* |
| $3.33CaO.P_2O_5$ (HA-am) | 2.0 | *0.0* | 3.0 | *0.0* | 1.7 | *0.0* | 2.6 | *0.4* |
| $3.33CaO.P_2O_5$ (HA-x) | 1.2 | *0.4* | 2.4 | *0.5* | 1.3 | *0.4* | 2.6 | *0.4* |
| $4CaO.P_2O_5$ (TTCP) | 1.0 | *0.0* | 2.0 | *0.0* | 1.3 | *0.0* | 2.6 | *0.4* |
| $CaCO_3$-aragonite | 1.0 | *0.0* | 2.7 | *0.6* | 1.0 | *0.0* | 2.6 | *0.4* |
| $CaCO_3$-calcite | 1.0 | *0.0* | 2.7 | *0.6* | 1.0 | *0.0* | 2.6 | *0.4* |
| ProOsteon 200R-acidi | 2.8 | *1.0* | 4.4 | *0.5* | 1.7 | *0.6* | 2.6 | *0.4* |
| ProOsteon 200R-neutr | 2.0 | *0.0* | 2.4 | *0.5* | 2.2 | *0.0* | 2.6 | *0.4* |
| | | | | | | | | *0.0* |
| Ostite C1 | 1.0 | *0.0* | 3.0 | *0.0* | 0.9 | *0.0* | 2.6 | *0.4* |
| Ostite C2 | 1.7 | *0.6* | 2.3 | *0.6* | 1.9 | *0.7* | 2.6 | *0.4* |
| Ostite C3 | 1.7 | *1.2* | 2.7 | *0.6* | 1.6 | *1.2* | 2.6 | *0.4* |
| GB9N | 2.0 | *1.0* | 2.7 | *0.6* | 1.9 | *1.0* | 2.6 | *0.4* |
| Bioglass | | | | | | | | |

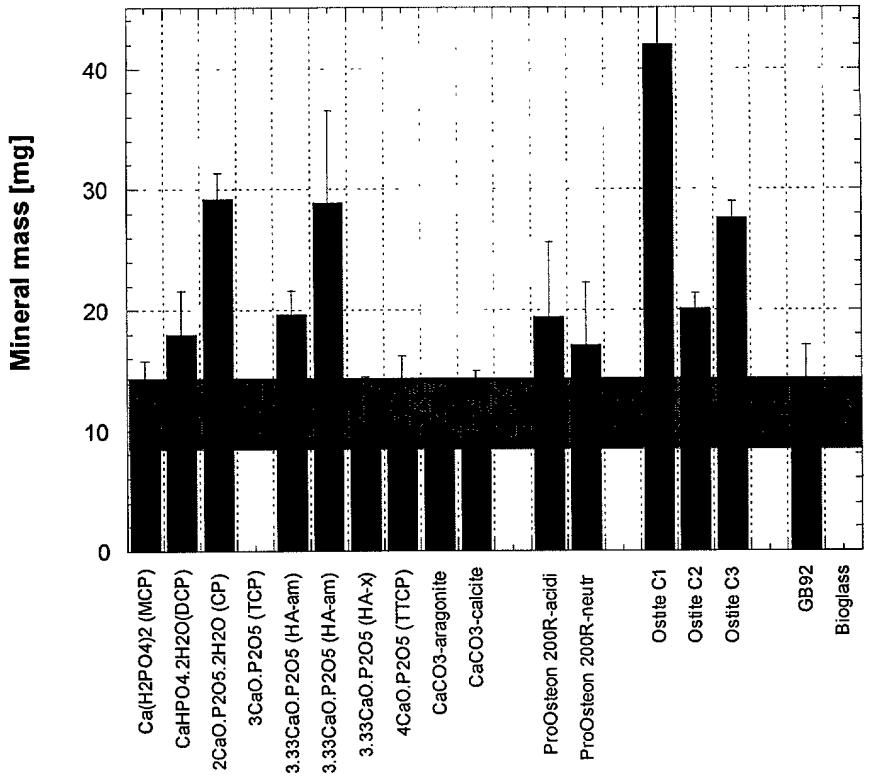
## Figure 4 A




## Figure 4 B

| | Mineral Concentration | | | | Mineral conc - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CB | | CPB | | CB | |
| | avg | *±SD* | avg | *±SD* | avg | *SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 12.3 | *4.1* | 8.8 | *1.9* | 15.0 | *5.0* | 10.7 | *1.4* |
| $CaHPO4.2H_2O$(DCP) | 12.1 | *0.5* | 11.1 | *0.7* | 11.7 | *0.5* | 10.7 | *1.4* |
| $2CaO.P_2O_5.2H2O$ (CP) | 16.4 | *0.0* | 11.1 | *0.5* | 15.9 | *0.0* | 10.7 | *1.4* |
| $3CaO.P_2O_5$ (TCP) | | | | | | | | |
| $3.33CaO.P_2O_5$ (HA-am) | 18.2 | *0.3* | 8.3 | *1.8* | 23.5 | *0.4* | 10.7 | *1.4* |
| $3.33CaO.P_2O_5$ (HA-am) | 18.1 | *3.2* | 8.5 | *1.4* | 22.9 | *4.0* | 10.7 | *1.4* |
| $3.33CaO.P_2O_5$ (HA-x) | 18.5 | *0.6* | 13.3 | *1.4* | 14.9 | *0.5* | 10.7 | *1.4* |
| $4CaO.P_2O_5$ (TTCP) | 17.8 | *5.0* | 13.7 | *0.9* | 13.9 | *3.9* | 10.7 | *1.4* |
| $CaCO_3$-aragonite | 14.6 | *2.3* | 11.2 | *1.6* | 14.0 | *2.2* | 10.7 | *1.4* |
| $CaCO_3$-calcite | 12.2 | *3.0* | 10.0 | *1.6* | 13.1 | *3.2* | 10.7 | *1.4* |
| ProOsteon 200R-acidi | 19.3 | *7.2* | 15.3 | *4.2* | 13.5 | *5.1* | 10.7 | *1.4* |
| ProOsteon 200R-neutr | 25.4 | *2.8* | 16.4 | *3.2* | 16.6 | *1.8* | 10.7 | *1.4* |
| Ostite C1 | 26.6 | *1.8* | 8.1 | *0.7* | 35.2 | *2.4* | 10.7 | *1.4* |
| Ostite C2 | 23.6 | *4.5* | 8.3 | *0.5* | 30.5 | *5.8* | 10.7 | *1.4* |
| Ostite C3 | 25.7 | *5.7* | 7.4 | *0.5* | 37.3 | *8.3* | 10.7 | *1.4* |
| GB9N | 15.6 | *0.1* | 9.5 | *0.8* | 17.6 | *0.1* | 10.7 | *1.4* |
| Bioglass | | | | | | | | |

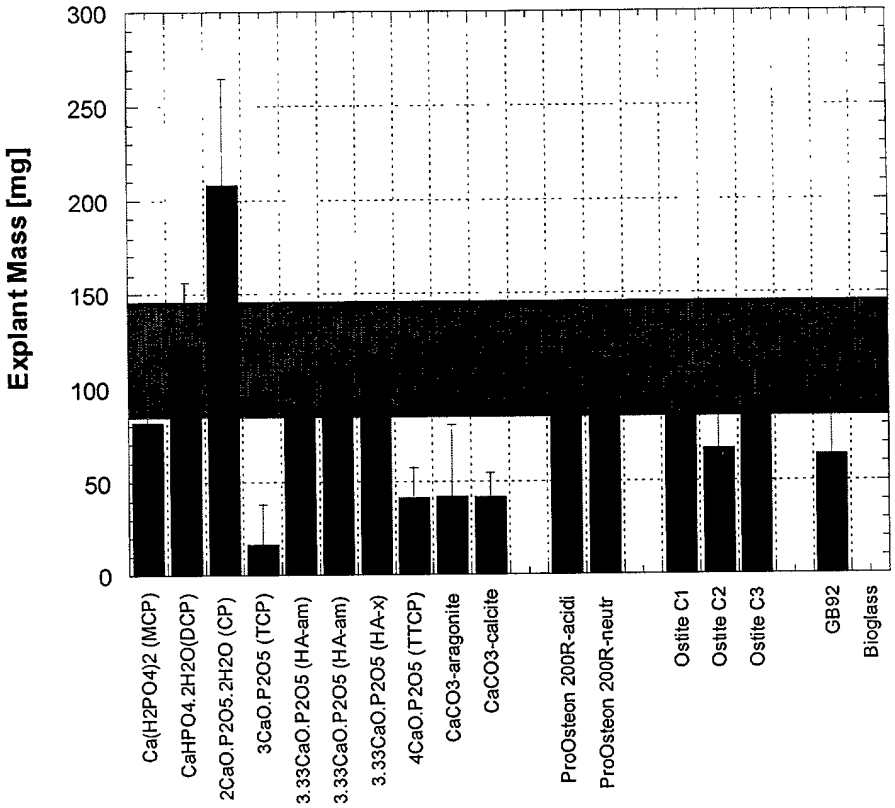
## Figure 5 A




## Figure 5 B

| | Mineral Mass | | | | Mineral Mass - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CB | | CPB | | CB | |
| | avg | *±SD* | avg | *±SD* | avg | *±SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 9.9 | *3.0* | 8.5 | *0.7* | 12.1 | *3.7* | 10.4 | *1.8* |
| $CaHPO4.2H_2O$(DCP) | 18.2 | *3.6* | 10.5 | *2.2* | 18.0 | *3.6* | 10.4 | *1.8* |
| $2CaO.P_2O_5.2H2O$ (CP) | 33.3 | *2.4* | 11.8 | *0.8* | 29.2 | *2.1* | 10.4 | *1.8* |
| $3CaO.P_2O_5$ (TCP) | | | | | | | | |
| $3.33CaO.P_2O_5$ (HA-am) | 26.8 | *2.8* | 14.2 | *5.1* | 19.6 | *2.0* | 10.4 | *1.8* |
| $3.33CaO.P_2O_5$ (HA-am) | 26.8 | *7.0* | 9.6 | *1.9* | 28.9 | *7.6* | 10.4 | *1.8* |
| $3.33CaO.P_2O_5$ (HA-x) | 16.7 | *6.4* | 16.4 | *0.3* | 10.5 | *4.0* | 10.4 | *1.8* |
| $4CaO.P_2O_5$ (TTCP) | 14.3 | *7.8* | 14.1 | *1.6* | 10.5 | *5.7* | 10.4 | *1.8* |
| $CaCO_3$-aragonite | 13.2 | *4.3* | 14.5 | *2.7* | 9.4 | *3.1* | 10.4 | *1.8* |
| $CaCO_3$-calcite | 8.2 | *4.2* | 8.6 | *1.8* | 9.9 | *5.1* | 10.4 | *1.8* |
| ProOsteon 200R-acidi | 10.3 | *3.3* | 5.5 | *1.6* | 19.4 | *6.2* | 10.4 | *1.8* |
| ProOsteon 200R-neutr | 6.6 | *2.0* | 4.0 | *1.8* | 17.1 | *5.2* | 10.4 | *1.8* |
| Ostite C1 | 34.5 | *5.7* | 8.5 | *1.3* | 42.0 | *6.9* | 10.4 | *1.8* |
| Ostite C2 | 20.8 | *1.3* | 10.7 | *0.1* | 20.1 | *1.3* | 10.4 | *1.8* |
| Ostite C3 | 25.8 | *1.3* | 9.7 | *1.6* | 27.6 | *1.4* | 10.4 | *1.8* |
| GB9N Bioglass | 11.8 | *2.7* | 8.8 | *0.4* | 13.9 | *3.2* | 10.4 | *1.8* |

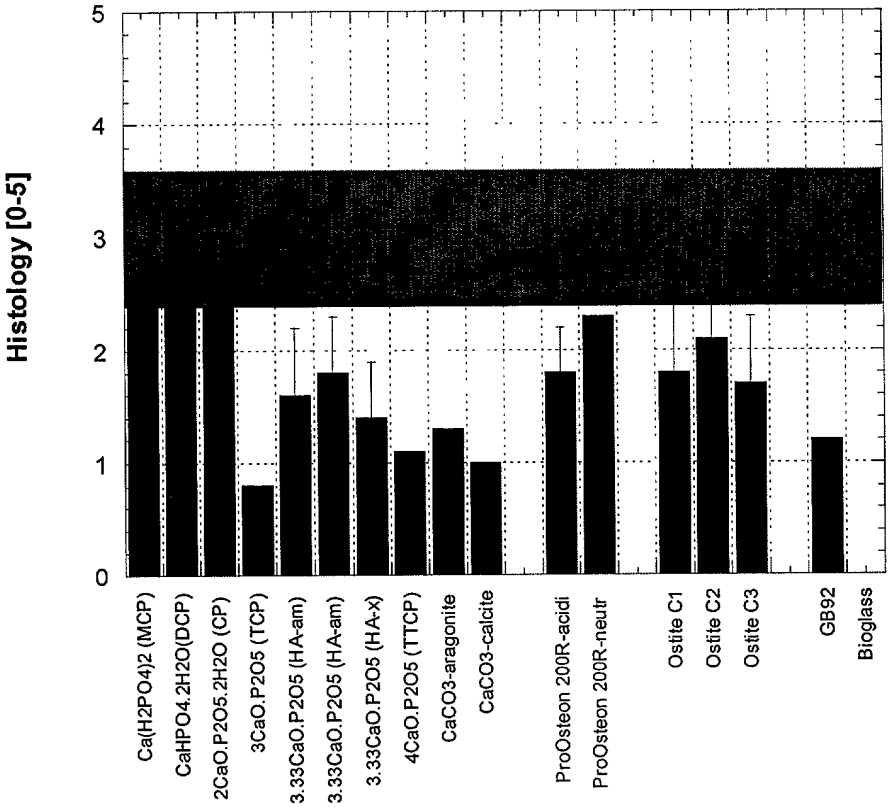
## Figure 6 A




## Figure 6 B

| | Explant Mass | | | | Explant Mass - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CDB | | CPB | | CDB | |
| | avg | *±SD* | avg | *±SD* | avg | *±SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 107.5 | *22.5* | 154.7 | *24.3* | 81.6 | *17.1* | 117.5 | *28.9* |
| $CaHPO4.2H_2O$(DCP) | 78.9 | *21.6* | 75.5 | *16.9* | 122.7 | *33.6* | 117.5 | *28.9* |
| $2CaO.P_2O_5.2H2O$ (CP) | 98.9 | *27.0* | 55.8 | *36.1* | 208.2 | *56.8* | 117.5 | *28.9* |
| $3CaO.P_2O_5$ (TCP) | 11.7 | *15.3* | 83.2 | *20.7* | 16.5 | *21.6* | 117.5 | *28.9* |
| $3.33CaO.P_2O_5$ (HA-am) | 107.3 | *29.4* | 137.4 | *15.3* | 91.7 | *25.1* | 117.5 | *28.9* |
| $3.33CaO.P_2O_5$ (HA-am) | 124.6 | *25.6* | 130.2 | *29.4* | 112.4 | *23.1* | 117.5 | *28.9* |
| $3.33CaO.P_2O_5$ (HA-x) | 111.1 | *16.5* | 110.7 | *25.6* | 117.9 | *17.5* | 117.5 | *28.9* |
| $4CaO.P_2O_5$ (TTCP) | 41.1 | *16.0* | 116.9 | *16.0* | 41.3 | *16.1* | 117.5 | *28.9* |
| $CaCO_3$-aragonite | 50.1 | *45.1* | 139.3 | *45.1* | 42.2 | *38.0* | 117.5 | *28.9* |
| $CaCO_3$-calcite | 68.0 | *21.0* | 191.0 | *21.0* | 41.8 | *12.9* | 117.5 | *28.9* |
| ProOsteon 200R-acidi | 74.7 | *13.6* | 80.4 | *29.1* | 109.1 | *21.4* | 117.5 | *28.9* |
| ProOsteon 200R-neutr | 29.2 | *6.0* | 35.5 | *12.7* | 96.6 | *24.1* | 117.5 | *28.9* |
| | | | | | | | | *0.0* |
| Ostite C1 | 123.0 | *46.3* | 167.3 | *28.5* | 86.3 | *4.2* | 117.5 | *28.9* |
| Ostite C2 | 82.9 | *21.2* | 146.3 | *28.6* | 66.6 | *37.2* | 117.5 | *28.9* |
| Ostite C3 | 127.0 | *26.6* | 157.5 | *31.2* | 94.7 | *15.8* | 117.5 | *28.9* |
| GB9N | 52.8 | *20.5* | 97.5 | *22.6* | 63.6 | *24.7* | 117.5 | *28.9* |
| Bioglass | | | | | | | | |

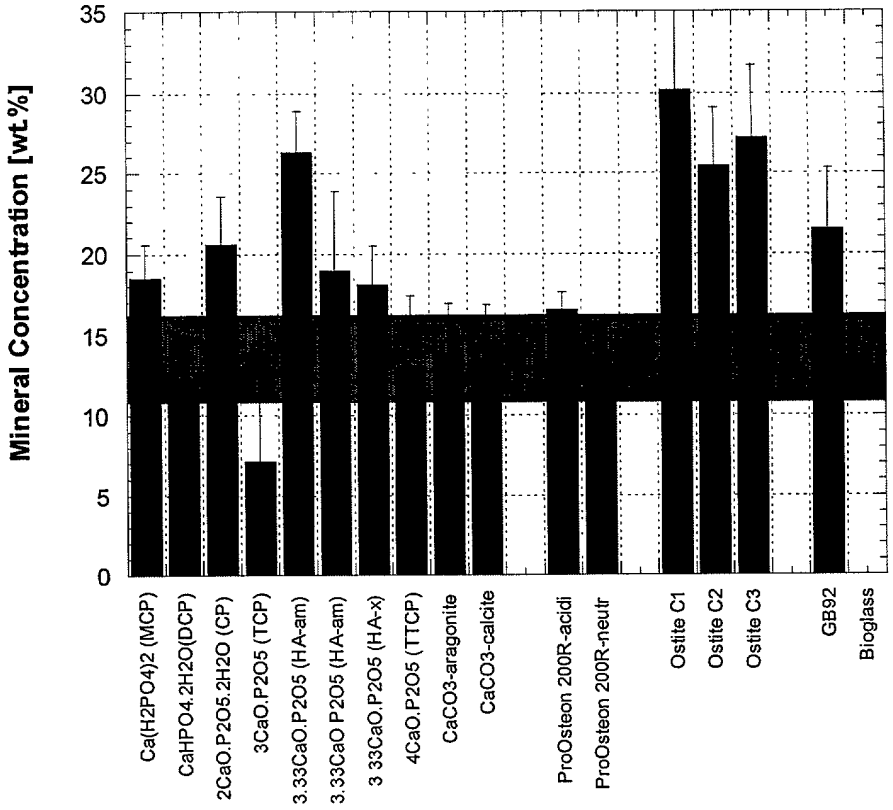
## Figure 7 A




## Figure 7 B

| | Histology Score | | | | Histology Score - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CDB | | CPB | | CDB | |
| | avg | *±SD* | avg | *±SD* | avg | *±SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 3.0 | *0.0* | 3.7 | *0.5* | 2.4 | *0.0* | 3.0 | *0.6* |
| $CaHPO4.2H_2O$(DCP) | 4.0 | *0.6* | 3.8 | *0.6* | 3.1 | *0.5* | 3.0 | *0.6* |
| $2CaO.P_2O_5.2H2O$ (CP) | 2.3 | *0.8* | 2.8 | *1.3* | 2.4 | *0.8* | 3.0 | *0.6* |
| $3CaO.P_2O_5$ (TCP) | 1.0 | *0.0* | 3.7 | *0.5* | 0.8 | *0.0* | 3.0 | *0.6* |
| $3.33CaO.P_2O_5$ (HA-am) | 1.3 | *0.5* | 2.4 | *0.7* | 1.6 | *0.6* | 3.0 | *0.6* |
| $3.33CaO.P_2O_5$ (HA-am) | 1.1 | *0.3* | 1.8 | *0.6* | 1.8 | *0.5* | 3.0 | *0.6* |
| $3.33CaO.P_2O_5$ (HA-x) | 1.3 | *0.5* | 2.7 | *0.5* | 1.4 | *0.5* | 3.0 | *0.6* |
| $4CaO.P_2O_5$ (TTCP) | 1.0 | *0.0* | 2.7 | *0.5* | 1.1 | *0.0* | 3.0 | *0.6* |
| $CaCO_3$-aragonite | 1.0 | *0.0* | 2.3 | *0.6* | 1.3 | *0.0* | 3.0 | *0.6* |
| $CaCO_3$-calcite | 1.0 | *0.0* | 3.0 | *0.0* | 1.0 | *0.0* | 3.0 | *0.6* |
| ProOsteon 200R-acidi | 2.5 | *0.6* | 4.0 | *0.0* | 1.8 | *0.4* | 3.0 | *0.6* |
| ProOsteon 200R-neutr | 2.0 | *0.0* | 2.6 | *0.9* | 2.3 | *0.0* | 3.0 | *0.6* |
| | | | | | | | | *0.0* |
| Ostite C1 | 1.9 | *0.8* | 3.1 | *0.4* | 1.8 | *0.8* | 3.0 | *0.6* |
| Ostite C2 | 2.1 | *0.8* | 2.9 | *0.3* | 2.1 | *0.8* | 3.0 | *0.6* |
| Ostite C3 | 1.8 | *0.6* | 3.2 | *0.4* | 1.7 | *0.6* | 3.0 | *0.6* |
| GB9N | 1.0 | *0.0* | 2.5 | *0.6* | 1.2 | *0.0* | 3.0 | *0.6* |
| Bioglass | | | | | | | | |

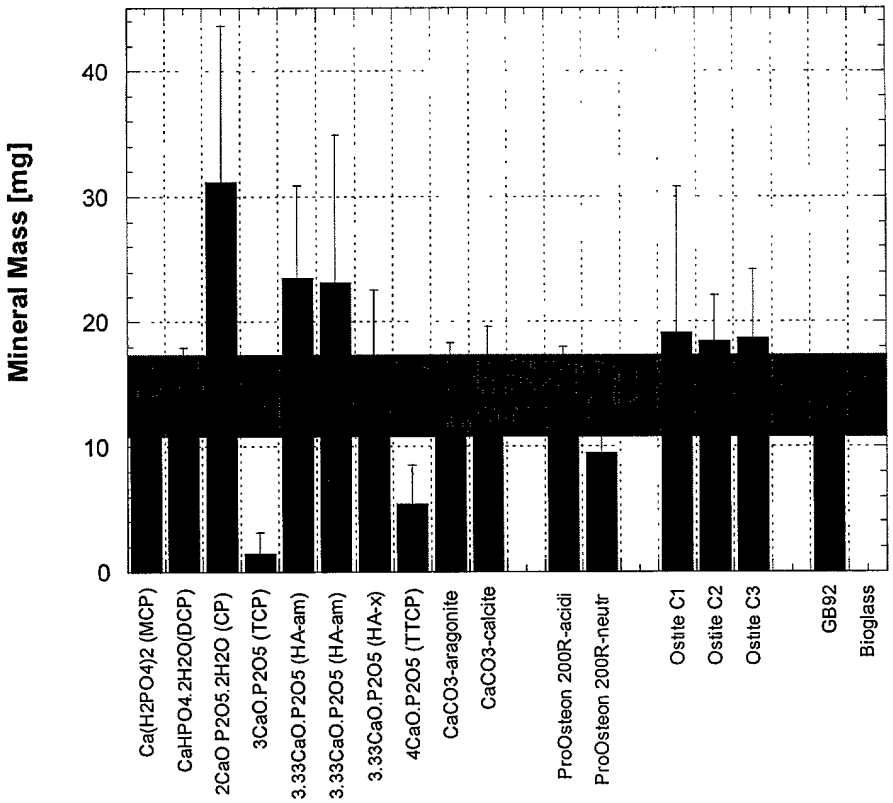
## Figure 8 A




## Figure 8 B

| | Mineral Concentration | | | | Mineral conc. - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CDB | | CPB | | CDB | |
| | avg | *±SD* | avg | *±SD* | avg | *±SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 18.0 | *2.0* | 13.1 | *1.8* | 18.5 | *2.1* | 13.5 | *2.7* |
| $CaHPO4.2H_2O$(DCP) | 11.9 | *2.7* | 13.0 | *2.1* | 12.3 | *2.8* | 13.5 | *2.7* |
| $2CaO.P_2O_5.2H2O$ (CP) | 17.3 | *2.5* | 11.3 | *1.0* | 20.6 | *3.0* | 13.5 | *2.7* |
| $3CaO.P_2O_5$ (TCP) | 7.6 | *7.0* | 14.4 | *1.8* | 7.1 | *6.6* | 13.5 | *2.7* |
| $3.33CaO.P_2O_5$ (HA-am) | 24.6 | *2.4* | 12.6 | *2.1* | 26.3 | *2.6* | 13.5 | *2.7* |
| $3.33CaO.P_2O_5$ (HA-am) | 18.3 | *4.7* | 13.0 | *1.4* | 19.0 | *4.9* | 13.5 | *2.7* |
| $3.33CaO.P_2O_5$ (HA-x) | 18.9 | *2.5* | 14.1 | *2.6* | 18.1 | *2.4* | 13.5 | *2.7* |
| $4CaO.P_2O_5$ (TTCP) | 13.1 | *4.4* | 13.6 | *2.1* | 13.0 | *4.4* | 13.5 | *2.7* |
| $CaCO_3$-aragonite | 14.5 | *3.3* | 14.2 | *4.0* | 13.8 | *3.1* | 13.5 | *2.7* |
| $CaCO_3$-calcite | 12.3 | *3.0* | 12.3 | *3.0* | 13.5 | *3.3* | 13.5 | *2.7* |
| ProOsteon 200R-acidic | 19.1 | *1.3* | 15.6 | *2.6* | 16.5 | *1.1* | 13.5 | *2.7* |
| ProOsteon 200R-neutral | 22.6 | *2.8* | 23.2 | *15.2* | 13.1 | *1.6* | 13.5 | *2.7* |
| Ostite C1 | 22.2 | *5.4* | 9.9 | *2.1* | 30.2 | *7.3* | 13.5 | *2.7* |
| Ostite C2 | 22.6 | *3.3* | 12.0 | *2.8* | 25.4 | *3.7* | 13.5 | *2.7* |
| Ostite C3 | 23.2 | *3.8* | 11.5 | *2.8* | 27.2 | *4.5* | 13.5 | *2.7* |
| GB9N Bioglass | 18.7 | *3.3* | 11.7 | *0.8* | 21.5 | *3.8* | 13.5 | *2.7* |

## Figure 9 A




## Figure 9 B

| | Mineral Mass | | | | Mineral Mass - *normalized* | | | |
|---|---|---|---|---|---|---|---|---|
| | CPB | | CDB | | CPB | | CDB | |
| | avg | *±SD* | avg | *±SD* | avg | *±SD* | avg | *±SD* |
| $Ca(H_2PO_4)_2$ (MCP) | 17.3 | *2.6* | 18.4 | *3.1* | 13.9 | *2.1* | 14.8 | *3.5* |
| $CaHPO4.2H_2O$(DCP) | 9.4 | *2.2* | 9.6 | *3.2* | 14.5 | *3.4* | 14.8 | *3.5* |
| $2CaO.P_2O_5.2H2O$ (CP) | 13.3 | *5.3* | 6.3 | *1.1* | 31.2 | *12.4* | 14.8 | *3.5* |
| $3CaO.P_2O_5$ (TCP) | 1.1 | *1.3* | 11.2 | *1.6* | 1.5 | *1.7* | 14.8 | *3.5* |
| $3.33CaO.P_2O_5$ (HA-am) | 26.2 | *8.3* | 16.5 | *2.8* | 23.5 | *7.4* | 14.8 | *3.5* |
| $3.33CaO.P_2O_5$ (HA-am) | 28.9 | *14.7* | 18.5 | *3.3* | 23.1 | *11.8* | 14.8 | *3.5* |
| $3.33CaO.P_2O_5$ (HA-x) | 17.7 | *6.4* | 15.9 | *0.9* | 16.5 | *6.0* | 14.8 | *3.5* |
| $4CaO.P_2O_5$ (TTCP) | 5.8 | *3.4* | 16.0 | *3.9* | 5.4 | *3.1* | 14.8 | *3.5* |
| $CaCO_3$-aragonite | 12.1 | *7.2* | 15.6 | *3.5* | 11.5 | *6.8* | 14.8 | *3.5* |
| $CaCO_3$-calcite | 14.2 | *9.2* | 17.7 | *8.5* | 11.9 | *7.7* | 14.8 | *3.5* |
| ProOsteon 200R-acidi | 14.7 | *4.3* | 15.6 | *7.0* | 13.9 | *4.1* | 14.8 | *3.5* |
| ProOsteon 200R-neutr | 5.9 | *1.6* | 9.2 | *4.4* | 9.5 | *2.6* | 14.8 | *3.5* |
| Ostite C1 | 22.9 | *14.0* | 17.7 | *2.8* | 19.1 | *11.7* | 14.8 | *3.5* |
| Ostite C2 | 17.3 | *3.5* | 13.9 | *3.4* | 18.4 | *3.7* | 14.8 | *3.5* |
| Ostite C3 | 26.1 | *7.6* | 20.6 | *2.8* | 18.7 | *5.5* | 14.8 | *3.5* |
| GB9N Bioglass | 10.9 | *4.9* | 14.0 | *2.8* | 11.5 | *5.2* | 14.8 | *3.5* |

Figure 10

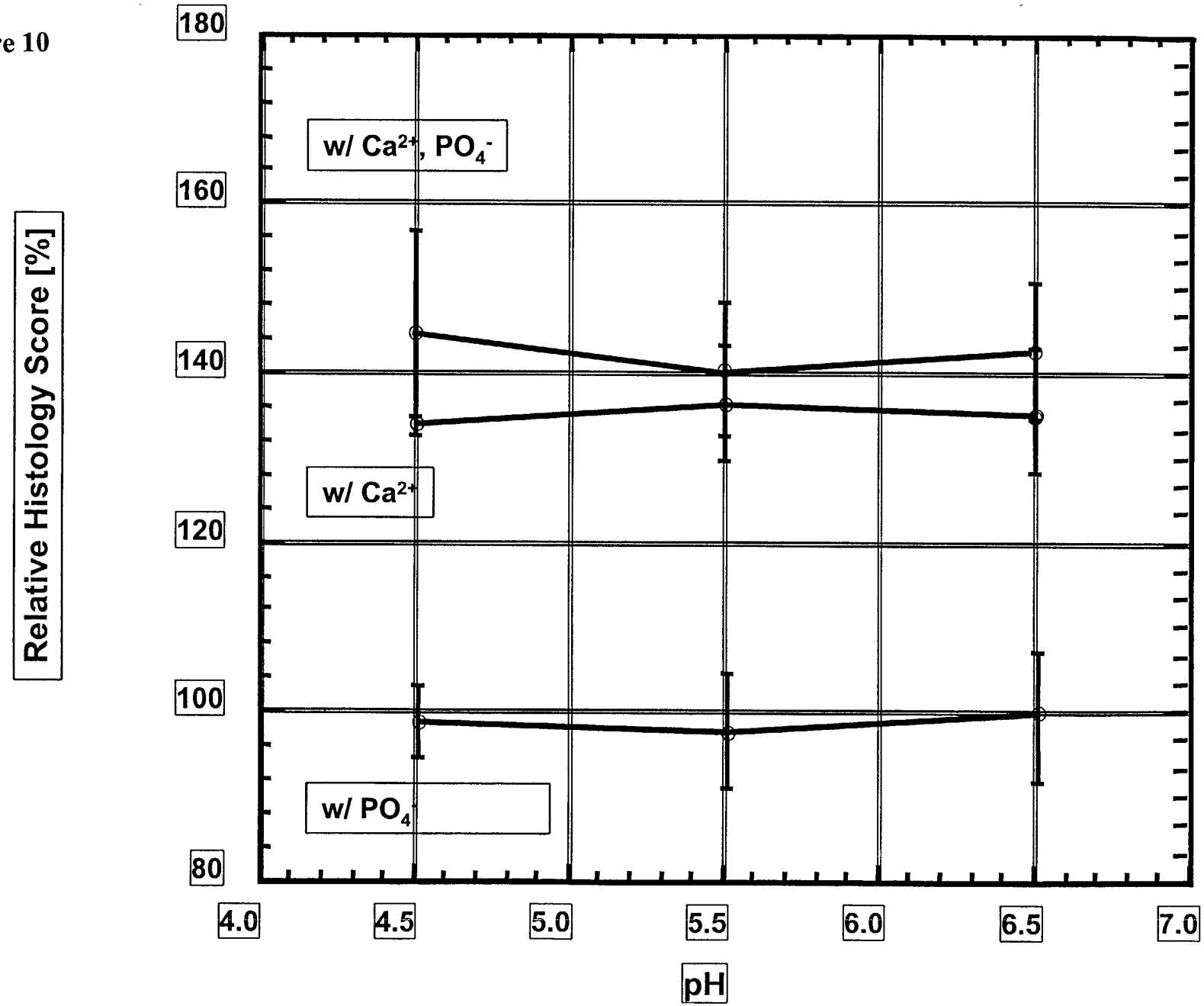
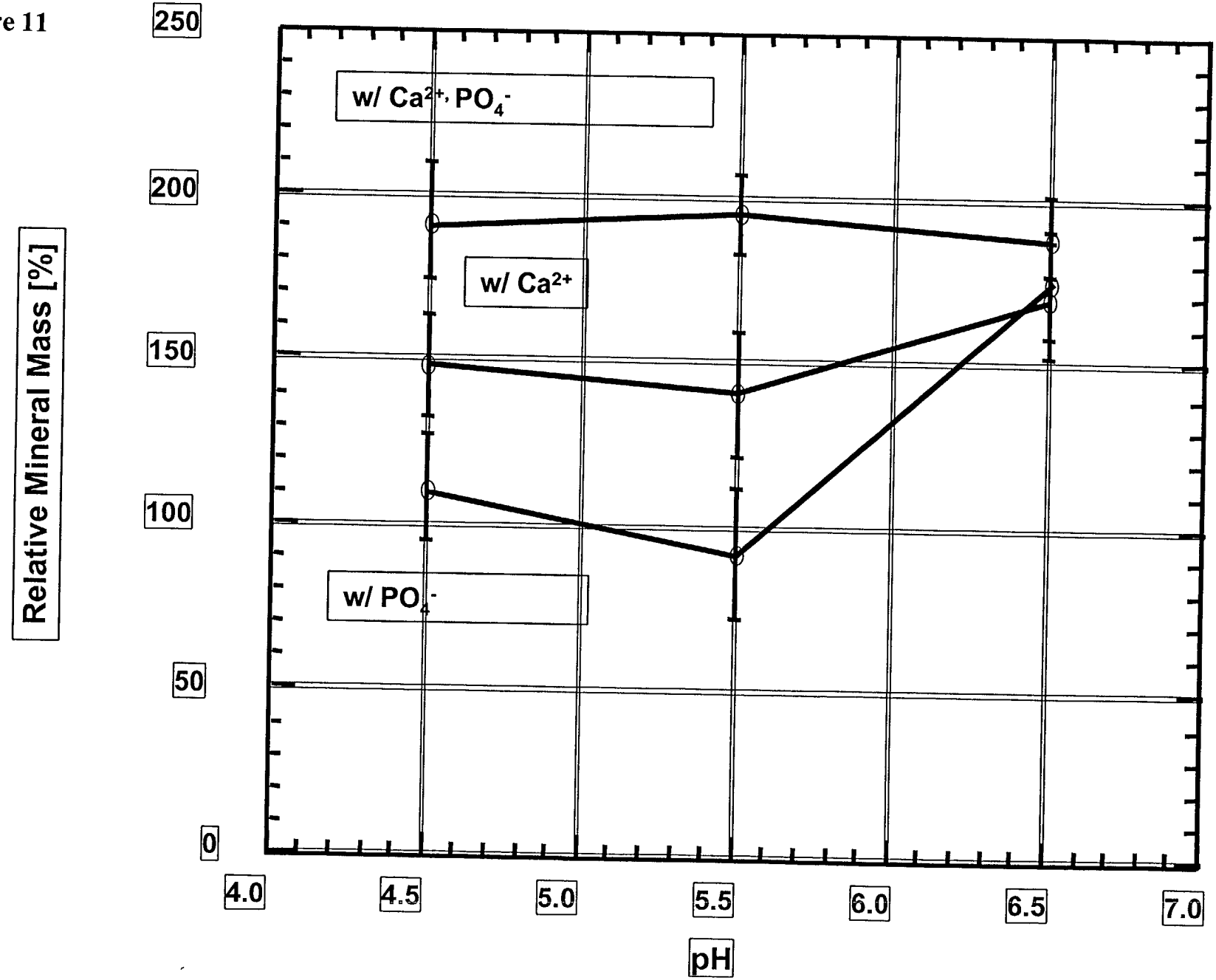

Relative Histology Score [%]
180
160
140
120
100
80
w/ Ca2+, PO4-
w/ Ca2+
w/ PO4-
4.0
4.5
5.0
5.5
6.0
6.5
7.0
pH

Figure 11


Relative Mineral Mass [%]
250
200
150
100
50
0
w/ Ca2+, PO4-
w/ Ca2+
w/ PO4-
4.0
4.5
5.0
5.5
6.0
6.5
7.0
pH